

PATENT

Atty. Docket No. 10018402-1

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/Joseph G. Swan/
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

HARUMI ANNE KUNO, ET AL.

Serial No.: 10/003,349

Filed: DECEMBER 6, 2001

For: TRANSFORMATIONAL CONVERSATION
DEFINITION LANGUAGE

Group Art Unit: 2153

Examiner: Chea, Philip J.

Conf. No.: 5233

**APPEAL BRIEF
ON APPEAL TO THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Mail Stop Appeal Brief - Patent
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Dear Sir:

Appellants in the above-captioned patent application appeal the final rejection of claims 19-37 set forth by the Examiner mailed July 10, 2007, a Notice of Appeal having been timely filed on October 8, 2007, with December 8, 2007 being a Saturday.

I. REAL PARTY IN INTEREST

The real party in interest in this application is Hewlett-Packard Development Company L.P., pursuant to an assignment recorded on April 30, 2002, at reel 012918 frame 0434 and a subsequent assignment recorded on September 30, 2003, at reel 014061 frame 0492.

II. RELATED APPEALS AND INTERFERENCES

Appellants are not aware of any related appeals, interferences or judicial proceedings.

III. STATUS OF CLAIMS

Claims 19-37 have been finally rejected and are the subject matter of this appeal. Claims 1-18 have been canceled. In accordance with 37 C.F.R. § 1.192(c)(9), a copy of the claims involved in this appeal is included in the Claims Appendix attached hereto.

IV. STATUS OF THE AMENDMENTS

No amendment has been filed subsequent to the final rejection.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Conventionally, when an automated Web-based service and an automated client communicate with each other, highly specific (and matching) protocols must be observed by both parties. As a result, *ad hoc* communications are nearly impossible without a great deal of advance coordination. In addition, even where the appropriate protocols have been specifically defined by both sides, permitting communication to

occur, any desired changes or enhancements often are very difficult to implement. For example, changes to the Web service typically require substantial recoding of the server logic and, in order to maintain compatibility, the client logic as well.

Similarly, the client logic ordinarily must be specifically tailored to each individual server system with which it wishes to interact. Then, such client logic subsequently must be updated whenever those server systems are updated, again in an effort to maintain compatibility.

One structural aspect of the present invention is the separation of logic flows (transitions), underlying functional units (transactions) and any necessary document conversions (transformations) into separately defined components. As a result, conversation definitions often are easier to construct initially, and then any necessary changes usually can be accommodated much more easily. That is, such a separation often can provide for flexibility that is not achievable with conventional systems.

For example, upon discovering a certain required minimum amount of information about the transactions, transition structure and/or document types utilized by a particular automated Web service, a client operating in accordance with the present invention often will be able to conduct an *ad hoc* conversation with that Web service. In other words, a system according to the present invention can be provided with enough flexibility so that it is not necessary to have complete information about any particular Web service in order to conduct a conversation with it.

Additionally, the present invention can be used to facilitate modifications to accommodate new business processes and/or changes to existing business processes made by either participant. Often, neither the automated Web service nor the

automated client will need to modify any of its underlying code, but instead can accommodate such changes, e.g., by automatically converting one type of document used by the client into another type of document used by the Web service, or vice versa. Such capability often can free the software developers from having to worry about document mismatches. As long as the general type of document is the same (e.g., the necessary substantive information is included) and the specific document types are supported in the defined transactions or transformations, the two parties generally will be able to exchange documents on an *ad hoc* basis.

Finally, the separation of document type definitions, transactions, transition structure and transformations according to the present invention often can achieve the advantages described above in a highly efficient manner. For example, in representative embodiments of the present invention a central library of transactions and/or transformations is maintained, used and reused by a variety of Web services, thereby creating uniformity, while at the same time providing developers with the ability to easily create and/or modify Web services.

Thus, independent claim 19 is directed to one or more computer-readable media storing a computer language. See, e.g., the Title, page 1 lines 2-4, and original claims 8-18 of the Specification. The computer language includes: (a) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used (e.g., as described at page 5 lines 11-15, page 8 lines 5-6, page 9 lines 5-6 and page 11 lines 27-31 of the Specification); (b) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types (e.g., as

described at page 5 lines 11-12 and 16-22 and at page 13 lines 32-34 of the Specification); (c) a set of transformations for use in connection with the defined interactions, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure, together with instructions for applying such transformations to compensate for mismatches between documents actually received and expected inbound document types (e.g., as described at page 5 lines 11-12 and 31-33, page 9 lines 28-29, page 12 line 25 through page 13 line 28 and page 16 line 14 through page 17 line 3 of the Specification); and (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions (e.g., as described at page 5 lines 11-12 and 23-30 and at page 14 lines 33-37 of the Specification). Each of the foregoing elements (a)-(d) is a separately defined component of the computer language. See, e.g., page 4 lines 3-13 and 18-19, page 5 lines 11-33, page 6 lines 19-25 and page 11 lines 24-27 of the Specification.

Independent claim 25 is directed to a conversation controller for controlling a conversation between a Web service and an external entity. See, e.g., page 10 lines 9-10. The controller includes: (a) a communications interface for exchanging documents with a Web service and an external entity (e.g., as described at page 8 lines 21-24, page 10 lines 9-15, page 10 line 21 through page 11 line 27 and Figures 2-3 of the Specification); (b) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used (e.g., as described at page 5 lines 11-15, page 8 lines 5-6, page 9

lines 5-6 and page 11 lines 27-31 of the Specification); (c) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types (e.g., as described at page 5 lines 11-12 and 16-22 and at page 13 lines 32-34 of the Specification); (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions (e.g., as described at page 5 lines 11-12 and 31-33, page 9 lines 28-29, page 12 line 25 through page 13 line 28 and page 16 line 14 through page 17 line 3 of the Specification); (e) a set of transformations, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure (e.g., as described at page 5 lines 11-12 and 23-30 and at page 14 lines 33-37 of the Specification); (f) a control processor for exchanging documents with the Web service and with the external entity through the communications interface in accordance with the transition structure (e.g., as described at page 11 lines 7-9 and 18-20 of three Specification); and (g) a transformation component that maps document types using the set of transformations to compensate for mismatches between documents actually received from the external entity and expected inbound document types (e.g., as described at page 11 lines 7-9 and 18-20 of three Specification). Moreover, each of (b)-(e) is a separately defined component of the conversation controller. See, e.g., page 4 lines 3-13 and 18-19, page 5 lines 11-33, page 6 lines 19-25, page 10 lines 9-10 and page 11 lines 24-27 of the Specification.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Claims 19-36 stand rejected under 35 USC § 103(a) over U.S. Patent 6,226,675 (Meltzer) in view of U.S. Patent 6,961,760 (Li).

VII. ARGUMENT

Authority Pertaining to Issues on Appeal

Obviousness Rejections Under 35 USC § 103

The Supreme Court has set forth the following general standard with respect to determination of obviousness:

"Under § 103, the scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented."

Graham v. John Deere Co. of Kansas City, 383 U.S. 1, 17-18, 86 S. Ct. 684, 15 L. Ed. 2d 545 (1966), quoted approvingly by *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1734 (U.S. 2007).

When performing this analysis, all claim limitations must because be considered. See, e.g., MPEP § 2143.01. At the same time, the analysis requires a determination as to whether the claimed invention "as a whole" would have been obvious just before the claimed invention was made to person of ordinary skill in the art. See, e.g., MPEP § 2142.

It is noted that, "rejections on obviousness cannot be sustained with mere conclusory statements..." MPEP § 2142, quoting *In re Kahn*, 441 F.3d 977, 988, 78

USPQ2d 1329, 1336 (Fed. Cir. 2006), which in turn was quoted approvingly by the Supreme Court in *KSR International Co. v. Teleflex Inc.*, 82 USPQ2d 1385, 1395-97 (2007). In addition, “impermissible hindsight must be avoided and the legal conclusion [regarding obviousness] must be reached on the basis of the facts gleaned from the prior art.” MPEP § 2142.

More specifically, “the examiner must provide evidence which as a whole shows that the legal determination sought to be proved (i.e., the reference teachings establish a *prima facie* case of obviousness) is more probable than not.” MPEP § 2142.

Finally, even where all of a claim upon such as limitations can be found in the prior art, and the examiner must provide a convincing reason as to why one of ordinary skill in the art would have been prompted to combine such limitations in the same manner as recited in claim.

“Although common sense directs one to look with care at a patent application that claims as innovation is the combination of two known devices according to their established functions, it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known.”

KSR Int'l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1741 (U.S. 2007).

Claims 19, 21, 25, 32, 35 and 36

Independent claim 19 is directed to one or more computer-readable media storing a computer language. The computer language includes: (a) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used; (b) a set of defined

interactions, each interaction specifying any expected inbound document types and any resulting outbound document types; (c) a set of transformations for use in connection with the defined interactions, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure, together with instructions for applying such transformations to compensate for mismatches between documents actually received and expected inbound document types; and (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions. Significantly, each of (a)-(d) is a separately defined component of the computer language.

Independent claim 25 is directed to a conversation controller for controlling a conversation between a Web service and an external entity, the controller including: (a) a communications interface for exchanging documents with a Web service and an external entity; (b) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used; (c) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types; (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions; (e) a set of transformations, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure; (f) a control processor

for exchanging documents with the Web service and with the external entity through the communications interface in accordance with the transition structure; and (g) a transformation component that maps document types using the set of transformations to compensate for mismatches between documents actually received from the external entity and expected inbound document types. Moreover, each of (b)-(e) is a separately defined component of the conversation controller.

The foregoing combinations of features would not have been obvious in view of the applied art. For example, no permissible combination of Meltzer and Li would have disclosed or suggested a computer language or a conversation controller having the recited defined document type descriptions, set of defined interactions, set of transformations and transition structure, as separately defined components.

Rather, any permissible combination of Meltzer and Li only would have suggested a conventional system in which some or all of such components, if provided at all, are tightly integrated with each other. As noted in the Summary of Claimed Subject Matter section above, such a tight integration generally requires significant recoding and/or other work whenever any changes are to be made, irrespective of whether those changes are motivated from within or by external events. For example, such a conventional system generally would require significant rework whenever a client wishes to communicate with a new Web service, a trading partner of the client changes its communication protocols, or business processes change internally.

Meltzer appears to be directed to just such a conventional system. Li concerns automatic data transformation between communicating parties.

With regard to the above-referenced feature of the present invention, the Examiner simply asserts, "the fact that these [elements (a)-(d)] are defined as components of the computer language is implied if not inherent when dealing with systems in an environment as shown in Meltzer."

In response, it is first noted that even the Examiner does not assert that "each of [elements] (a)-(d) is a *separately defined* component of said computer language [emphasis added]" or that "each of [elements] (b)-(e) is a separately defined component of said conversation controller", as is actually recited in independent claims 19 and 25, respectively.

Although the Examiner's change in the claim's wording might at first seem fairly slight, the resulting change in meaning is highly significant in the context of the present invention. That is, the fact that each of the recited elements is a separately defined component of a computer language or conversation controller can, if implemented appropriately, provide the necessary decoupling to allow for vastly improved efficiencies in defining and adapting the conversational abilities of automated agents, as discussed above. However, it is precisely this separation (or decoupling) that even the Examiner has not alleged to be present in the applied art.

Second, the Examiner has cited no evidence indicating that defined components corresponding to the presently recited elements (a)-(d) is implied (i.e., necessarily present) in systems such as Meltzer's.

In the current Office Action, in response to similar points made previously by Appellants, the Examiner first acknowledges that Meltzer does not expressly disclose that the specific steps above are separately defined components, but then argues:

"However, Meltzer discloses the limitations above are executed by processes and components that work together to achieve a successful conversation using documents (see column 78, line 44 – column 80, line 21 and Figs. 12, 13, and 14, and 15). At the time of the invention it would have been obvious to one skilled in the art that the processes described by Meltzer can be separated and combined to produce any number of defined components and successfully achieve the result of a conversation using documents."

In response to these arguments, Appellants first note that, even if the first sentence quoted above is correct, and Appellants are not able to verify whether or not it is, merely achieving a successful conversation is not enough to satisfy the limitations of the present invention. As noted above, the focus of the present invention is not simply making it possible to achieve a single successful conversation, but rather providing for flexibility to accommodate changes. Such flexibility is not accommodated in Meltzer's approach.

Second, the second sentence quoted above is a mere unsupported conclusion. There is absolutely no evidence cited by the Examiner to suggest that such a modification to Meltzer's system would have been desirable for any reason whatsoever.

Third, even if it were the case that one of ordinary skill in the art would have found it obvious that individual components "can be" separated and combined as desired, there is nothing in the applied art or any of the evidence of record to indicate that the specific separation of components presently recited would have been obvious to one of ordinary skill in the art.

Fourth, the specific portions of Meltzer cited above do not support an assertion that this feature of the invention would have been obvious. Specifically, column 78 line 44 through column 80 line 21 and Figures 12-15 of Meltzer merely appear to talk about processes for handling individual transactions (single document in, single document

out); they do not appear to say anything at all about individual components of a computer language or conversation controller, and they do not appear to say anything at all about transition structures.

In the following discussion, which addresses the additional points raised by the Examiner, each of the four recited elements is discussed within the context of the final wherein clause of claims 19 and 25. That is, each individual element is discussed in terms not only of whether such element is present, but whether it would have been obvious to define such element separately from the others of the four elements based on the cited portions of the applied art or other evidence.

Initially, the Examiner cites column 18 lines 42-55 of Meltzer as showing, as a separately defined component of a computer language or conversation controller, a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used. However, the cited portion of Meltzer, in fact, simply states that Meltzer's service description document defines the input and output documents used by its service.

In the particular example given by Meltzer, the service description document (transact.dtd) "models a transaction description, such as an invoice". In other words, as in other conventional systems, that portion of Meltzer indicates a tight coupling between document types and interactions (using the present claim terminology). Such a tight coupling is exactly the opposite of independent claim 19, in which "(a) a plurality of defined document type descriptions" and "(b) a set of defined interactions and interactions" are separately defined components.

Column 21 lines 33-40 and column 27 lines 18-49 of Meltzer are cited by the Examiner as showing, as a separately defined component of a computer language or conversation controller, a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types. However, column 21 lines 33-40 of Meltzer has been studied in detail and says nothing at all about a set of defined interactions, much less a set of defined interactions that is separately defined from a plurality of document type descriptions, a set of transformations and a transition structure, as presently claimed. Rather, this cited portion of Meltzer only appears to note that "a market participant is able to identify itself, and identify the types of input documents and the types of output documents with which it is willing to transact business." This clearly says nothing at all about the use of a set of defined interactions that is a separately defined component of a computer language, as presently claimed.

In fact, just the opposite, this portion of Meltzer follows Meltzer's example of a service description document and appears to be referring to it. That is, rather than indicating a set of defined interactions that is separately defined from a plurality of defined document type descriptions, this section of Meltzer instead indicates that they are, in fact, one and the same.

Column 27 lines 18-49 of Meltzer only appears to talk about using XML documents as interfaces (*i.e.*, Meltzer's business interface definition or BID documents) and storage of product information (*i.e.*, Meltzer's semantic maps). The Examiner apparently is asserting that the present claim limitation reads on Meltzer's BID documents. However, nothing in Meltzer indicates that any such document constitutes

a defined interaction that specifies expected inbound document types and resulting outbound document types, as presently recited. To the contrary, column 27 lines 34-36 indicates that there are separate input document BIDs and output document BIDs.

Column 22 lines 43-51 of Meltzer is cited by the Examiner as showing element (d) of claim 19. However, that portion of Meltzer has been studied in detail and merely describes certain general advantages of XML document types and XML type markup languages. It says nothing at all about a transition structure as a separately defined component of a computer language.

Accordingly, independent claims 19 and 25, together with their dependent claims 21, 32, 35 and 36, are believed to be allowable over the applied art.

Claims 20 and 29

Claim 20 depends from independent claim 19 and claim 29 depends from independent claim 25 (discussed above). Each recites the further limitation that at least one of the specified interactions allows for any of a plurality of inbound document types, and the transition structure specifies different transitions depending upon which document type is actually received. Particularly in combination with the features recited in their respective independent claims 19 and 25, this additional feature of the invention is not disclosed or suggested by the applied art.

In particular, the portion of Meltzer cited in the Office Action as showing it does not appear to say anything at all about transitions to different interactions. Rather, column 23, lines 38-60 of Meltzer only appears to discuss the processing of a single interaction.

For these additional reasons, claims 20 and 29 are believed to be allowable over the applied art.

Claims 22 and 33

Claim 22 depends from independent claim 19 and claim 33 depends from independent claim 25 (discussed above). Each recites the further limitation that the defined document type descriptions, the defined interactions and the set of transformations are available for defining additional transition structures that specify interactions and transitions for other desired conversations. Particularly in combination with the features recited in their respective independent claims 19 and 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 23 lines 23-37 of Meltzer as showing this feature the invention. However, it is unclear exactly how this portion of Meltzer would have disclosed or suggested it. Specifically, this portion Meltzer is discussing the use of listeners that apparently process a single interaction. Nothing in it even mentions or suggests any kind of transition structure, much less anything to do with the present claim limitation.

For these additional reasons, claims 22 and 33 are believed to be allowable over the applied art.

Claims 23 and 30

Claim 23 depends from independent claim 19 and claim 30 depends from independent claim 25 (discussed above). Each recites the further limitation of a second transition structure, corresponding to a second conversation, that identifies a second group of interactions from the set of defined interactions and specifies transitions

between the interactions in the second group. Particularly in combination with the features recited in their respective independent claims 19 and 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 24, lines 31-57 of Meltzer as showing this feature of the invention. However, it is unclear exactly how this portion of Meltzer would have disclosed or suggested it. Specifically, this portion Meltzer is discussing the use of listeners that apparently process a single interaction. Nothing in it even mentions or suggests any kind of transition structure, much less anything to do with the present claim limitation.

For these additional reasons, claims 23 and 30 are believed to be allowable over the applied art.

Claims 24 and 31

Claim 24 depends from claim 23 and claim 31 depends from claim 30 (discussed above). Each recites the further limitation that at least some of the interactions in the second group also specify any applicable transformations. Particularly in combination with the features recited in their respective base claims, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 24, lines 31-57 of Meltzer as showing this feature of the invention. However, it is unclear exactly how this portion of Meltzer would have disclosed or suggested it. Specifically, nothing in this portion Meltzer appears to mention any transformations that are applicable.

For these additional reasons, claims 24 and 31 are believed to be allowable over the applied art.

Claim 26

Claim 26 depends from independent claim 25 (discussed above) and recites the further limitation that at least some of the interactions also specify any applicable transformations. Particularly in combination with the features recited in independent claim 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 21, lines 41-54 of Meltzer as showing this feature the invention. However, the only transformations referenced in this portion of Meltzer are into a form usable by Meltzer's host transaction system. Nothing in this portion of Meltzer mentions any transformations specifying how to convert one document type in a common document structure to another document type, also in the common document structure, as presently recited.

For these additional reasons, claim 26 is believed to be allowable over the applied art.

Claim 27

Claim 27 depends from independent claim 25 (discussed above) and recites the further limitation that both the transition structure and a plurality of transition structures for other Web services are accessible through a central Web-based registry. Particularly in combination with the features recited in independent claim 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 9, lines 35-44 of Meltzer as showing this feature the invention. However, nothing in this portion of Meltzer appears to mention anything about a plurality of transition structures for Web services being accessible through a

central Web-based registry. Rather, it only discusses a central registry for BIDs, which apparently are just static interaction interfaces.

For these additional reasons, claim 27 is believed to be allowable over the applied art.

Claim 28

Claim 28 depends from independent claim 25 (discussed above) and recites the further limitation that the transition structure defines permissible conversation flows from the perspective of the Web service. Particularly in combination with the features recited in independent claim 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 9, lines 35-44 of Meltzer as showing this feature the invention. However, nothing in this portion of Meltzer appears to mention anything about any transition structure. Rather, it only discusses a central registry for BIDs, which apparently are just static interaction interfaces.

For these additional reasons, claim 28 is believed to be allowable over the applied art.

Claim 34

Claim 34 depends from independent claim 25 (discussed above) and recites the further limitation that the control processor is located remotely from a processor executing the Web service. Particularly in combination with the features recited in independent claim 25, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites Figure 11 of Meltzer as showing this feature of the invention. In particular, the Examiner appears to be arguing that the processor executing the Web service reads on host services 1105 and 1106, and the control processor reads on document translator 1103. However, Meltzer does not appear to indicate that its document translator 1103 exchanges documents with a Web service and with an external entity a defined transition structure, as presently recited. Rather, it appears to simply react on an interaction-by-interaction basis.

For these additional reasons, claim 34 is believed to be allowable over the applied art.

Claim 37

Claim 37 depends from independent claim 19 (discussed above) and recites the further limitation that the transition structure defines flows between states for the given conversation, and each state is defined independently of how the given conversation was navigated to reach such state. Particularly in combination with the features recited in independent claim 19, this additional feature of the invention is not disclosed or suggested by the applied art.

The Examiner cites column 78 lines 15-34 and 44-60 of Meltzer as showing this feature the invention. However, this portion of Meltzer has been studied in detail and it is only seen to discuss processing in response to a single received document and not to say anything at all about a state machine.

For these additional reasons, claim 37 is believed to be allowable over the applied art.

VIII. CONCLUDING REMARKS

As Appellants have shown above, for a number of reasons, nothing in the cited references discloses, teaches, or suggests the invention recited by the claims on appeal. Appellants therefore respectfully submit that the claimed invention is patentably distinct over the applied art.

In view of the foregoing remarks, Appellants respectfully request that the rejection of claims 19-37 be reversed and a Notice of Allowance issued.

Respectfully submitted,

JOSEPH G. SWAN, A PROFESSIONAL CORP.

Dated: December 9, 2007

By /Joseph G. Swan/
Joseph G. Swan
Registration No. 41,338

CLAIMS APPENDIX

Claims on Appeal

1-18 (Canceled)

19. At least one computer-readable medium storing a computer language, said computer language comprising:

- (a) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used;
 - (b) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types;
 - (c) a set of transformations for use in connection with the defined interactions, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure, together with instructions for applying said transformations to compensate for mismatches between documents actually received and expected inbound document types; and
 - (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions,
- wherein each of (a)-(d) is a separately defined component of said computer language.

20. At least one computer-readable medium according to claim 19, wherein at least one of the specified interactions allows for any of a plurality of inbound document types, and wherein the transition structure specifies different transitions depending upon which document type is actually received.

21. At least one computer-readable medium according to claim 19, wherein the plurality of defined document type descriptions comprise XML stylesheets.

22. At least one computer-readable medium according to claim 19, wherein the defined document type descriptions, the defined interactions and the set of transformations are available for defining additional transition structures that specify interactions and transitions for other desired conversations.

23. At least one computer-readable medium according to claim 19, wherein the computer language comprises a second transition structure, corresponding to a second conversation, that identifies a second group of interactions from the set of defined interactions and specifies transitions between the interactions in the second group.

24. At least one computer-readable medium according to claim 23, wherein at least some of the interactions in the second group also specify any applicable transformations.

25. A conversation controller for controlling a conversation between a Web service and an external entity, comprising:
 - (a) a communications interface for exchanging documents with a Web service and an external entity;
 - (b) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used;
 - (c) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types;
 - (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions;
 - (e) a set of transformations, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure;
 - (f) a control processor for exchanging documents with the Web service and with the external entity through the communications interface in accordance with the transition structure; and
 - (g) a transformation component that maps document types using the set of transformations to compensate for mismatches between documents actually received from the external entity and expected inbound document types,

wherein each of (b)-(e) is a separately defined component of said conversation controller.

26. A conversation controller according to claim 25, wherein at least some of the interactions also specify any applicable transformations.

27. A conversation controller according to claim 25, wherein both the transition structure and a plurality of transition structures for other Web services are accessible through a central Web-based registry.

28. A conversation controller according to claim 25, wherein the transition structure defines permissible conversation flows from the perspective of the Web service.

29. A conversation controller according to claim 25, wherein at least one of the specified interactions allows for any of a plurality of inbound document types, and wherein the transition structure specifies different transitions depending upon which document type is actually received.

30. A conversation controller according to claim 25, further comprising a second transition structure, corresponding to a second conversation, that identifies a second group of interactions from the set of defined interactions and specifies transitions between the interactions in the second group.

31. A conversation controller according to claim 30, wherein at least some of the interactions in the second group also specify any applicable transformations.

32. A conversation controller according to claim 25, wherein the plurality of defined document type descriptions comprise XML stylesheets.

33. A conversation controller according to claim 25, wherein the defined document type descriptions, the defined interactions and the set of transformations are available for defining additional transition structures that specify interactions and transitions for other desired conversations.

34. A conversation controller according to claim 25, wherein the control processor is located remotely from a processor executing the Web service.

35. At least one computer-readable medium according to claim 19, wherein the common document structure comprises an extensible markup language (XML).

36. A conversation controller according to claim 25, wherein the common document structure comprises an extensible markup language (XML).

37. At least one computer-readable medium according to claim 19, wherein the set of defined interactions models states of the given conversation, the transition

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structure defines flows between states for the given conversation, and each state is defined independently of how the given conversation was navigated to reach said state.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.